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531.d.32
3
TO THE

TUTOR AND SCHOLAR'S

ASSISTANT.

BY

JOSEPH SAUL.

LONDON:

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MDCXCXVII;

20

R E Y

MAJOR AND CHIEF

ASSISTANT

MAJOR

MAJOR

MAJOR

A KEY

TO THE

Tutor and Scholar's Assistant.

SIMPLE ADDITION.

1	2855
2	36425
3	355286
4	4177755
5	4288
6	94941
7	449441
8	4364227
9	48762249
10	333265233
11	48814
12	440624
13	5177754
14	57353
15	575364
16	6012744
17	40416729
18	5996
19	121256
20	660746

21	6642
22	62913
23	659249
24	5774165
25	8277
26	51338
27	590316
28	7121
29	700421
30	7742631
31	7415
32	87626
33	938759
34	5768729
35	14266532
36	385838038
37	516749131
38	540837909
39	231201375
40	10553131440

SIMPLE SUBTRACTION.

1	21355772	18	63785817444
2	37375417302	19	1064885163
3	131119778	20	99986382403
4	2209200047	21	643170656513
5	2453500811	22	37461020943742
6	34996620139	23	496055579
7	16905	24	331156
8	4065139	25	3015784
9	1746695	26	168
10	618877177	27	1658
11	966782309624	28	102
12	54741518	29	1741
13	2160558	30	172
14	4627036760	31	19623
15	267805	32	970
16	223115	33	8—29—37
17	1933435713		

SIMPLE MULTIPLICATION.

1	1745639290	4	12853877014
2	1118458962	2	4280815521
2	11476950592	3	5707754028
2	2215425888	4	7134692535
3	2953901184	5	8561631042
4	3692376480	6	9988569549
5	4430851776	7	1415508056
6	5169327072	8	12842446563
7	5907802368	9	14269385070
8	6646277664	5	11187456832
3	11234567890	2	1781185248
2	2469135780	3	2374913664
3	3703703670	4	2968642080
4	4938271560	5	3562370496
5	6172839450	6	4156098912
6	7407407340	7	4749827328
7	8641975230	8	5343555744
8	9876543120	6	119037294724
9	1111111010	2	28555942086

SIMPLE MULTIPLICATION.

6	338074589448	17	1663757256
	447593236810		234663843448
	557111884172		310268667208
	6666305131534		46751223192
	776149178896		58566678168
	885667846648	18	13691892754
7	18721260658		237254554154
	217063336070		336918927540
8	147924857728		433898288014
	263661378176	19	114293454140014040
	3229610139264		365158132535297564214
	4340481078784	20	8952
	5640190263680	21	9342
9	117894117584	22	83552
	295147083204	23	17520
	3280742164112	24	1899736
	4130033093956		21049692
10	15621911781301		31349604
	22525526938574		41836961
	31549983067236		52361807
11	1181550878032000	25	13478464
	233324511313625		27826544
	3343665115767525		336523872
12	1602879924381130		437103616
	249942988009016480	26	1133771308
13	1613927572707952000		2738328932
	25478725236136685000		3246109644
14	1272417219485504200000		4450092412
	2167209998624627300000	27	125835070570700
15	1488624396		2470110974806500
	2638970364		3767412528850
	31541046172	28	13767996232
	43044505852		242072957927
	5714143348		367199932800
16	155189275	29	140999959
	266227130		2151999848
	340472135		3262999737
	451509990	30	1644896182908250
	5261229235		2831844392957900
	6114057835		

SIMPLE DIVISION.

1	166124 $\frac{1}{2}$	8	311791583 $\frac{1}{2}$
	2174339 $\frac{1}{2}$		412808098 $\frac{1}{2}$
2	136846392 $\frac{1}{2}$		54173425 $\frac{1}{2}$
	224564261 $\frac{1}{2}$	9	15221700 $\frac{1}{2}$
	318423196 $\frac{1}{2}$		28657030 $\frac{1}{2}$
	414738557		35575714 $\frac{1}{2}$
	512282130 $\frac{1}{2}$		43916275 $\frac{1}{2}$
	610527540 $\frac{1}{2}$		54767639 $\frac{1}{2}$
	79211598 $\frac{1}{2}$	10	11035276 $\frac{1}{2}$
	88188087 $\frac{1}{2}$		2539387 $\frac{1}{2}$
3	134920723		3367834 $\frac{1}{2}$
	231040642 $\frac{1}{2}$		41910338 $\frac{1}{2}$
	393121928	11	17968178 $\frac{1}{2}$
	469841446		224873638 $\frac{1}{2}$
	555873156 $\frac{1}{2}$		39331555 $\frac{1}{2}$
	646560964		419686088 $\frac{1}{2}$
4	1196438229 $\frac{1}{2}$	12	1360386 $\frac{1}{2}$
	256125208 $\frac{1}{2}$		2193856 $\frac{1}{2}$
	349109557 $\frac{1}{2}$		368563 $\frac{1}{2}$
	443652939 $\frac{1}{2}$	13	1972703 $\frac{1}{2}$
	539287645 $\frac{1}{2}$		2513805 $\frac{1}{2}$
5	1154575212 $\frac{1}{2}$	14	18541078 $\frac{1}{2}$
	2115931409 $\frac{1}{2}$		211021788 $\frac{1}{2}$
	377287606 $\frac{1}{2}$	15	156959 $\frac{1}{2}$
	4231862819		238093 $\frac{1}{2}$
	551525070 $\frac{1}{2}$	16	11542631 $\frac{1}{2}$
	692745127 $\frac{1}{2}$		21082733 $\frac{1}{2}$
	757965704 $\frac{1}{2}$	17	19654216 $\frac{1}{2}$
6	124637509 $\frac{1}{2}$		210002088 $\frac{1}{2}$
	222397736	18	110045369 $\frac{1}{2}$
	320531258		212480774 $\frac{1}{2}$
	410265629	9	13564535 $\frac{1}{2}$
	56843752 $\frac{1}{2}$		21610849 $\frac{1}{2}$
	65842264 $\frac{1}{2}$	20	122073867 $\frac{1}{2}$
7	14562501 $\frac{1}{2}$		2527080372 $\frac{1}{2}$
	23623163 $\frac{1}{2}$		3290345991 $\frac{1}{2}$
	329330367 $\frac{1}{2}$		4671570892 $\frac{1}{2}$
	42593422 $\frac{1}{2}$	21	136923487 $\frac{1}{2}$
8	19523970 $\frac{1}{2}$		224615658 $\frac{1}{2}$
	215160606 $\frac{1}{2}$		318461743 $\frac{1}{2}$

SIMPLE DIVISION.

21	4	14769395
	5	12307829 $\frac{1}{2}$
	6	10549567 $\frac{1}{2}$
	7	923087 $\frac{1}{2}$
	8	8205219 $\frac{1}{2}$
	9	7384697 $\frac{1}{2}$
	10	6713361 $\frac{1}{2}$
	11	6153914 $\frac{1}{2}$
22	1	1871337983 $\frac{1}{2}$
	2	1247558655 $\frac{1}{2}$
	3	935668991 $\frac{1}{2}$
	4	748535193 $\frac{1}{2}$
	5	623779327 $\frac{1}{2}$
	6	534667995 $\frac{1}{2}$
	7	467834495 $\frac{1}{2}$
	8	415852885 $\frac{1}{2}$
	9	374267596 $\frac{1}{2}$
	10	340243269 $\frac{1}{2}$
	11	311889663 $\frac{1}{2}$
23	1	724086741 $\frac{1}{2}$
	2	36204337 $\frac{1}{2}$
	3	24136224 $\frac{1}{2}$
	4	18102168 $\frac{1}{2}$
	5	14481734 $\frac{1}{2}$
	6	12668112 $\frac{1}{2}$
	7	10344096 $\frac{1}{2}$
	8	9051084 $\frac{1}{2}$
	9	8045408 $\frac{1}{2}$
24	1	32736479 $\frac{1}{2}$
	2	227280399 $\frac{1}{2}$
	3	10912159 $\frac{1}{2}$
	4	8184119 $\frac{1}{2}$
	5	4676639 $\frac{1}{2}$
25	1	6962328194 $\frac{1}{2}$
	2	812271622 $\frac{1}{2}$
	3	406135811 $\frac{1}{2}$
	4	541514415 $\frac{1}{2}$
26	1	156195723 $\frac{1}{2}$
	2	104130482 $\frac{1}{2}$
	3	78097861 $\frac{1}{2}$

26	4	66941024 $\frac{1}{2}$
	5	52065241 $\frac{1}{2}$
27	1	94985149 $\frac{1}{2}$
	2	56538779 $\frac{1}{2}$
	3	8480816 $\frac{1}{2}$
	4	29316404 $\frac{1}{2}$
	5	6596190 $\frac{1}{2}$
28	1	2899487 $\frac{1}{2}$
	2	621318 $\frac{1}{2}$
	3	10873076 $\frac{1}{2}$
29	1	5344672 $\frac{1}{2}$
	2	1781557 $\frac{1}{2}$
	3	1169147 $\frac{1}{2}$
	4	3563114 $\frac{1}{2}$
30	1	2432
	2	2736
	3	1824
	4	3192
	5	912
	6	608
	7	2026 $\frac{1}{2}$
	8	2128
	9	684
31	1	1062 $\frac{1}{2}$
	2	1798 $\frac{1}{2}$
	3	2248 $\frac{1}{2}$
	4	8044 $\frac{1}{2}$
	5	15982 $\frac{1}{2}$
	6	508 $\frac{1}{2}$
32	1	2049168 $\frac{1}{2}$
	2	1217726 $\frac{1}{2}$
	3	9477406 $\frac{1}{2}$
	4	2728623 $\frac{1}{2}$
33	1	95378
	2	71533 $\frac{1}{2}$
	3	63585 $\frac{1}{2}$
	4	90736
	5	54501 $\frac{1}{2}$
	6	53650 $\frac{1}{2}$
	7	381512

SIMPLE DIVISION.

$$\begin{array}{r}
 33 \overline{) 81752\frac{4}{5}} \\
 9 \overline{) 254341\frac{1}{2}} \\
 34 \overline{) 15907\frac{1}{2}} \\
 2 \overline{) 2685\frac{1}{11}} \\
 3 \overline{) 1905\frac{1}{11}} \\
 4 \overline{) 1671\frac{4}{5}}
 \end{array}$$

$$\begin{array}{r}
 34 \overline{) 5841\frac{34}{118}} \\
 6 \overline{) 553\frac{64}{118}} \\
 35 \overline{) 1942343\frac{13}{118}} \\
 2 \overline{) 539176\frac{10}{118}} \\
 3 \overline{) 307161\frac{129}{118}} \\
 4 \overline{) 240205\frac{101}{118}}
 \end{array}$$

PROMISCUOUS QUESTIONS.

$$\begin{array}{r}
 1 \overline{) 10830} \\
 2 \overline{) 163} \\
 3 \overline{) 555} \\
 4 \overline{) 11076} \\
 5 \overline{) 46\frac{4}{8}\frac{6}{3}} \\
 6 \overline{) 1900, 1748, 138624, 24} \\
 7 \overline{) 83124} \\
 8 \overline{) 49294} \\
 9 \overline{) 6188}
 \end{array}$$

$$\begin{array}{r}
 10 \overline{) 84} \\
 11 \overline{) 11862\frac{1}{2}} \\
 12 \overline{) 32} \\
 13 \overline{) 576} \\
 14 \overline{) 3648} \\
 15 \overline{) 42} \\
 16 \overline{) 84} \\
 17 \overline{) 84}
 \end{array}$$

REDUCTION.

$$\begin{array}{r}
 1 \overline{) 4940 \text{ s.}} \\
 2 \overline{) 5616 \text{ d.}} \\
 3 \overline{) 1092 \text{ qr.}} \\
 4 \overline{) 45760 \text{ qr.}} \\
 5 \overline{) 11966 \text{ d.}} \\
 6 \overline{) 2289 \text{ s.}} \\
 7 \overline{) 23931 \text{ 4s.}} \\
 8 \overline{) 17959 \text{ d.}} \\
 9 \overline{) 493641 \text{ 4s. } 10\frac{3}{4} \text{ d.}} \\
 10 \overline{) 1904 \text{ qr. } 53312 \text{ lb.}} \\
 11 \overline{) 1472 \text{ qts.}} \\
 12 \overline{) 5040 \text{ in.}} \\
 13 \overline{) 334 \text{ cwt. } 2 \text{ qr. } 4 \text{ lb.}}
 \end{array}$$

$$\begin{array}{r}
 14 \overline{) 1243 \text{ } \epsilon \text{ } 4} \\
 15 \overline{) 11921.} \\
 16 \overline{) 40524 \text{ y.}} \\
 17 \overline{) 39331 \text{ 6s.}} \\
 18 \overline{) 7583 \text{ g. } 17 \text{ s.}} \\
 19 \overline{) 519232 \text{ oz.}} \\
 20 \overline{) 42939 \text{ c. } 1 \text{ qr. } 9 \text{ lb. } 5 \text{ oz.}} \\
 21 \overline{) 27344 \text{ h.}} \\
 22 \overline{) 821 \text{ lb. } 2 \text{ } 5 \text{ } 2 \text{ } 8} \\
 23 \overline{) 441514 \text{ gr.}} \\
 24 \overline{) 7667 \text{ p.}} \\
 25 \overline{) 2960 \text{ a. } 0 \text{ } 28} \\
 26 \overline{) 5 \text{ m. } 7 \text{ } 1 \text{ } 2\frac{1}{2} \text{ } 0 \text{ } 8}
 \end{array}$$

REDUCTION.

27	7779	54	32817 yds.
28	8608320 m.	55	171391
29	281 n.	56	5714 pts.
30	49781. 13s. 4d.	57	14619 b. 24 1
31	63157c. 1 8	58	17600
32	1710p. 1 55 2	59	1 year.
33	5516 pts.	60	11394g. 6s.
34	1732 h. 43	61	82167lb. 10 0 14
35	6624	62	681072 dr.
36	52 yds.	63	4897 p.
37	137 y. 11 1 5 9 33	64	446 n.
38	62438095 d. 36	65	273710m. 7 27 2½ 1 6 6
39	928 n.	66	7433 h. 6 2 1
40	197345 f. 1	67	44548 p.
41	372b. 17g.	68	1525 ch. 0 3 1
42	6243d. 48m.	69	926935100m, or 926939520
43	285834 gr. or 286062	70	942926400 m.
44	6497 lb. 8 3 2 5	71	288185028 in.
45	5731 m. 26 4½	72	46656
46	1585267200 in.	73	3082lb. 10 4 ⁸⁶⁷⁶ / ₁₃₉₉₉
47	4576 qr.	74	9075lb. 0 11 2
48	7833l.	75	52 m.
49	1178 n. 8	76	95m. 804y. 62i. 5f. 2i.
50	140580 gr.	77	23760 p.
51	130c. 2 4 9 12	78	23q. 31h. 951q. 1183h. 36l.
52	43474 dr.	79	258q. 804q. 48959q.
53	2960 a. 0 25	80	646lb. 8400lb.

COMPOUND ADDITION.

1	2910l. 11s. 2d.	8	192l. 4 11½
2	189l. 19s. 6½d.	9	829y. 3 0
3	186cwt. 3 9	10	686l. 15 2½
4	3026l. 8s. 3d.	11	442l. 18 11½
5	542l. 7 11½	12	179hd. 2 0
6	182t. 8 3 17	13	881l. 3 5
7	833l. 4 11½	14	966l. 18 9½

COMPOUND ADDITION.

15	1014a.	0	31	28	483lb.	7	1	2	10
16	664l.	6	$2\frac{1}{4}$	29	249a.	3	11		
17	4928l.	11	$9\frac{1}{4}$	30	85e.	2	3		
18	282y.	0	1	31	228d.	6	1	7	0 0 11
19	1255l.	16	$1\frac{1}{2}$	32	536y.	3	3		
20	866l.	14	$3\frac{1}{2}$	33	194hds.	18	2	0	
21	399cwt.	0	21 15	34	774ch.	12	3	4	
22	955y.	2	1	35	17ot.	11	3	17	
23	322lb.	9	15 8	36	352y.	7	0	2 0 8 44	
24	1203l.	18	6	37	898l.	15	8		
25	1256l.	8	$11\frac{1}{4}$	38	109hds.	11	2		
26	404l.	5	$11\frac{1}{2}$	39	30345lb.				
27	107l.	1	$2\frac{1}{4}$						

COMPOUND SUBTRACTION.

1	£.178	2	8	16	26lb.	8	13	10
2	129	14	$8\frac{1}{2}$	17	5a.	3	28	
3	138	8	$7\frac{3}{4}$	18	576m.	3	29	1 1
4	103	18	$0\frac{1}{2}$	19	29hd.	53	3	1
5	2	13	$4\frac{1}{2}$	20	15hd.	1	0	2
6	2	2	6	21	16qr.	4	1	
7	47	0	0	22	oy.	5	1	2 17 37
8	0	17	6	23	66l.	13	0	
9	2	19	$11\frac{1}{4}$	24	ol.	17s.	8d.	
10	11	3	6	25	387y.	1		
11	8	18	$9\frac{1}{2}$	26	154y.	3	2	
12	772	15	$9\frac{1}{2}$	27	24ol.	8	$6\frac{1}{2}$	
13	16cwt.	1	21	28	18t.	8	2	12
14	14y.	2	1	29	24l.	13	3	
15	194lb.	7	7 0 6	30	6g.	3	1	

COMPOUND

TUTOR AND SCHOLAR'S ASSISTANT. II

COMPOUND MULTIPLICATION.

1	1	£. 110	13	4
	2	41	12	$10\frac{1}{2}$
2	1	9	15	7
	2	14	13	4
	3	19	11	2
	4	24	8	$11\frac{1}{2}$
	5	29	6	9
	6	34	4	$6\frac{1}{2}$
	7	39	2	4
	8	44	0	$1\frac{1}{2}$
3	1	145	3	$1\frac{1}{2}$
	2	169	6	$11\frac{1}{4}$
	3	193	10	10
	4	217	14	$8\frac{1}{4}$
	5	241	18	$6\frac{1}{4}$
	6	266	2	$4\frac{1}{4}$
	7	290	6	3
4	1	4	3	$7\frac{3}{4}$
	2	5	0	$4\frac{1}{2}$
	3	5	17	$1\frac{1}{4}$
		6	13	10
	5	7	10	$6\frac{1}{4}$
	6	8	7	$3\frac{1}{2}$
	7	9	4	$0\frac{1}{4}$
	8	10	0	9
5	1	M. 255	6	22
	2	383	5	33
	3	511	5	4
	4	895	2	37
	5	1279	0	30
	6	1307	0	1
	7	1434	7	12
6	1	Y. 291	1	8
	2	364	1	4
	3	437	1	0
	4	510	0	8
	5	583	0	4
7	1	£. 9	14	$9\frac{1}{2}$
	2	11	13	9
	3	13	12	$8\frac{1}{2}$

7	4	15	11	8
	5	17	10	$7\frac{1}{2}$
	6	19	9	7
8	1	130	18	3
	2	152	14	$7\frac{1}{2}$
	3	174	11	0
	4	196	7	$4\frac{1}{2}$
	5	218	3	9
	6	240	0	$1\frac{1}{2}$
9	1	lb. 373	2	12
	2	426	6	8
	3	479	10	4
	4	533	2	0
	5	586	5	16
	6	639	9	12
10	1	cwt. 126	0	4 0
	2	220	2	7 0
	3	259	3	22 4
	4	756	0	24 0
11	1	£. 280	17	10
	2	379	11	8
	3	971	14	8
	4	2763	7	4
	5	2178	16	2
12	1	4706	15	$1\frac{1}{2}$
	3	1525	14	9
	3	43310	15	$10\frac{1}{2}$
	4	101447	3	0
13	1	cwt. 180	2	24
	2	290	2	24
	3	1162	3	12
14	1	£. 3539	14	0
	2	1007	16	$7\frac{1}{2}$
	3	15797	11	0
15	1	238	10	6
	2	224	6	6
	3	726	18	8
	4	1076	4	$0\frac{1}{2}$
16		3322	7	0
17		1395	14	$8\frac{1}{4}$

COMPOUND MULTIPLICATION.

18	1	£. 1283	2	8	23	£. 86	6	0
	2	1443	10	6	24	94	5	4
	3	1603	18	4	25	101	19	7½
	4	1764	6	2	26	264	12	0
	5	1924	14	0	27	Y. 1495	0	2
19	1	220	4	9	28	crwt. 334	1	15
	2	440	9	6	29	£. 32	4	0
	3	412	10	2	30	58	0	3
	4	991	1	4½	31	63	8	6
20	1	631	5	0	32	28	19	7
	2	2801	4	0	33	crwt. 35	0	4
	3	71685	0	7½	34	£. 39	1	0
21		8	16	0		1689	12	6
22		33	6	0				

COMPOUND DIVISION.

1	1	£. 21	14	9½	6	4	£. 25	11	1½
	2	14	9	10½		5	21	5	11½
	3	3	12	5½		6	18	5	1½
	4	3	19	11½		7	15	19	5½
2	1	3	17	10½		8	14	3	11½
	2	3	0	4½	7	1	73	9	6
	3	1	3	1½		2	20	19	10½
	4	0	12	6½		3	29	7	9½
3	1	C. 35	1	19		4	16	6	6½
	2	7	2	1		5	13	7	2½
	3	1	2	19	10		6	24	9
4	1	9	0	19	4		7	12	4
	2	2	3	7	0		8	36	14
	3	0	2	11	4		9	18	7
5	1	0	1	2	0		1	129	0
	2	0	0	1	9		2	96	15
	3	0	0	0	9		3	77	8
6	1	£. 63	17	10			4	64	10
	2	4	1	10½			5	55	5
	3	31	18	11			6	48	7

COMPOUND DIVISION.

B

COMPOUND DIVISION.

$$\begin{array}{r}
 22 \quad 4 \quad \text{£.} 10 \quad 7 \quad 4\frac{1}{2} \\
 \quad 5 \quad \quad 2 \quad 35 \quad 8\frac{5}{16} \\
 \quad 6 \quad \quad 1 \quad 18 \quad 10\frac{1}{4} \quad 1\frac{1}{8} \\
 23 \quad 1 \text{ cwt.} 61 \quad 2 \quad 0 \quad 6\frac{6}{31}
 \end{array}$$

$$\begin{array}{r}
 23 \quad 2 \quad 33 \quad 0 \quad 18 \quad 12\frac{2}{3} \\
 \quad 3 \quad 18 \quad 0 \quad 14 \quad 14\frac{6}{11} \\
 \quad 4 \quad 3 \quad 2 \quad 23 \quad 10\frac{1}{11}
 \end{array}$$

PROMISCUOUS QUESTIONS.

$$\begin{array}{r}
 1 \quad 1 \quad \text{£.} 5 \quad 9 \quad 2\frac{2}{3} \\
 \quad 2 \quad \quad 3 \quad 14 \quad 4\frac{1}{7} \\
 \quad 3 \quad \quad 2 \quad 18 \quad 2\frac{1}{2} \\
 \quad 4 \quad \quad 2 \quad 5 \quad 4\frac{1}{4} \quad 7\frac{7}{8} \\
 \quad 5 \quad \quad 1 \quad 15 \quad 7\frac{1}{2} \quad 1\frac{1}{8} \\
 \quad 6 \quad \quad 4 \quad 13 \quad 2 \quad 1\frac{1}{2} \\
 2 \quad 1 \quad 41 \quad 8 \quad 0\frac{6}{10} \\
 \quad 2 \quad 317 \quad 19 \quad 1\frac{1}{3} \\
 \quad 3 \quad 18 \quad 0 \quad 5\frac{1}{4} \quad 2\frac{8}{11} \\
 \quad 4 \quad 45 \quad 0 \quad 1\frac{4}{13} \\
 3 \quad 1 \text{ lb.} 0 \quad 2 \quad 19 \quad 14\frac{4}{15} \\
 \quad 2 \quad 0 \quad 1 \quad 9 \quad 9 \\
 \quad 3 \quad 0 \quad 8 \quad 16 \quad 6 \\
 \quad 4 \quad 0 \quad 10 \quad 8 \quad 21\frac{2}{3} \\
 \quad 5 \quad 0 \quad 2 \quad 5 \quad 7\frac{1}{8} \\
 4 \quad 1 \text{ E.E.} 173 \quad 3 \quad 1\frac{1}{2} \\
 \quad 2 \quad \quad 8 \quad 2 \quad 0\frac{3}{4} \\
 \quad 3 \quad \quad 50 \quad 3 \quad 1\frac{1}{2} \\
 \quad 4 \quad \quad 15 \quad 2 \quad 0\frac{1}{10} \\
 5 \quad 1 \text{ cwt.} 39 \quad 1 \quad 2\frac{3}{7} \\
 \quad 2 \quad \quad 9 \quad 1 \quad 25\frac{2}{3} \\
 \quad 3 \quad \quad 7 \quad 2 \quad 15\frac{1}{10} \\
 \quad 4 \quad \quad 6 \quad 2 \quad 22\frac{1}{4} \\
 \quad 5 \quad \quad 8 \quad 2 \quad 10\frac{3}{8} \\
 6 \quad \text{£.} 0 \quad 7 \quad 9\frac{1}{4} \\
 7 \quad \text{gal.} 12 \quad 0 \quad 0 \\
 8 \quad 1 \text{ cwt.} 3 \quad 1 \quad 7 \\
 \quad 2 \text{ lb.} 6 \quad 9 \quad 5 \\
 9 \quad 504 \\
 10 \quad 6835317
 \end{array}$$

$$\begin{array}{r}
 11 \quad 4015 \\
 12 \quad 61 \text{ \& } \text{£.} 71 \quad 8 \quad 6\frac{1}{2} \\
 13 \quad \text{G.} 16 \quad 2 \quad 0\frac{1}{3} \\
 14 \quad \text{£.} 99 \quad 8 \quad 4\frac{1}{2} \\
 15 \quad 0 \quad 1 \quad 2\frac{1}{2} \\
 16 \quad 2 \quad 9 \quad 8\frac{1}{2} \\
 17 \quad 1 \quad 60 \quad 0 \quad 4\frac{1}{2} \\
 \quad 2 \quad 52 \quad 10 \quad 4\frac{1}{2} \\
 18 \quad 33 \quad 0 \quad 0 \\
 19 \quad 8 \quad 1 \quad 10\frac{1}{2} \\
 20 \quad 1 \quad 25 \quad 6 \quad 4 \\
 \quad 2 \quad 28 \quad 3 \quad 6 \\
 \quad 3 \quad 32 \quad 5 \quad 2 \\
 21 \quad 19 \quad 19 \quad 11\frac{1}{2} \\
 22 \quad 9 \quad 5 \quad 0 \\
 23 \quad 0 \quad 11 \quad 6 \text{ \& } 11\frac{1}{2} \\
 24 \quad 0 \quad 1 \quad 7 \\
 25 \quad 3 \quad 7 \quad 6 \\
 26 \quad 0 \quad 1 \quad 0\frac{6}{15} \\
 27 \quad 48 \quad 6 \quad 10\frac{1}{2} \\
 28 \quad 311 \quad 5 \quad 1 \quad 29.35.2. \\
 29 \quad 30 \quad 0 \quad 0 \quad 8\frac{1}{2} \\
 30 \quad 144 \quad 0 \quad 0 \\
 31 \quad 7 \quad 0 \quad 0 \quad 0.1.2.0.4 \\
 32 \quad 12 \quad 0 \quad 0 \\
 33 \quad 7 \\
 34 \quad 1 \quad 4 \quad 1 \quad 8 \\
 \quad 2 \quad 4 \quad 7 \quad 6 \\
 \quad 3 \quad 5 \quad 0 \quad 11 \\
 \quad 4 \quad 6 \quad 10 \quad 1
 \end{array}$$

PROMISCUOUS QUESTIONS.

35	1	6	1	1	8
	2		1	2	9
	3		1	4	11
	4		1	3	10
	5		1	0	2 ¹
	6		1	3	3 ¹
36	1		3	6	7
	2		4	6	11
	3		5		10 ⁸

36	4	6	7	1	9 ¹
	5		7	8	10 ¹
37	1	54	1	13	4
	2	433		6	8
	3	325		0	0
38			1	13	10
39			0	3	0 ¹ 3 ¹
40			15	6	2

SINGLE RULE OF THREE.

- 1 7y. : 35s. :: 46y.—11l. 10 0
- 2 35s. : 7y. :: 120s.—24y.
- 3 7y. : 21s. :: 43y.—6l. 9 0
- 4 17y. : 84s. :: 476y.—117l. 12 0
- 5 8d. : 240m. :: 56d.—1680m.
- 6 320m. : 8d. :: 1680m.—42d.
- 7 27y. : 135s. :: 84y.—21l.
- 8 30s. : 12p. :: 130s.—16l. 5 0
- 9 8l. : 190s. :: 60l.—71l. 5 0
- 10 48d. : 120e. :: 2d.—5e.
- 11 17y. : 5l. 19s. :: 173y.—60l. 11 0
- 12 13y. : 3l. 5s. 5d. :: 147¹/₂y.—37l. 3 5¹/₂
- 13 14y. : 7l. 7s. :: 47¹/₂y.—25l. 1 4¹/₂
- 14 26y. : 9l. 14s. 6d. :: 147y.—54l. 19 8
- 15 6cwt. : 33l. :: 14cwt. 3q. 14lb.—81l. 16 3
- 16 27¹/₂cwt. : 77l. :: 1cwt.—2l. 15 5¹/₂
- 17 17cwt. : 95l. 4s. :: 1cwt.—5l. 12s. or 1s. per lb.
- 18 100l. : 4l. 10s. :: 746l. 15s.—33l. 12 0¹/₂
- 19 5s. 9d. : 10z. :: 9l. 9s.—2lb. 8oz. 17dr. 19gr.
- 20 368y. : 161l. 18s. 8d. :: 17y.—8l. 5 9
- 21 3l. 4s. : 36m. :: 11l. 4s. : 126m.
- 22 14cwt. 3. : 79l. 16s. :: 120cwt. 1q. 15lb.—68l. 7 6
- 23 79l. 16s. : 14cwt. 3q. :: 100l.—18cwt. 1q. 26lb.
- 24 1¹/₂lb. : 13l. :: 56lb.—2l. 0 5¹/₂

SINGLE RULE OF THREE.

- 25 100l. : 5l. :: 746l. 15s. — 37l. 6 9
 26 119d. : 7m. :: 17d — 49 men. — Inv.
 27 12h. : 8d. :: 16h. — 6 days. — Inv.
 28 32 : 5 :: 20 — 8 poles. — Inv.
 29 $1\frac{1}{4}$: 14 :: $\frac{1}{4}$ — $32\frac{1}{2}$ — Inv.
 30 85ol. : 7m. :: 34ol. — $17\frac{1}{2}$ months. — Inv.
 31 16s. : 2lb. 10oz. :: 12s. — 3lb. $9\frac{1}{4}$ oz. troy. — Inv.
 32 24cwt. : 3l. 4s. :: 32cwt. — 4l. 5 4
 33 24cwt. : 36m. :: 32cwt. — 27 miles. — Inv.
 34 3l. 4s. : 36m. :: 11l. 4s. — 126 miles.
 35 7cwt. : 19l. 2s 8d :: 46cwt. 14lb. — 126l. 1 6
 36 19l. 2s 8d : 7cwt. :: 126l. 1s 6d. — 46cwt. 14lb.
 37 12s. : 4lb. 5oz. :: 16s. — 3lb. 3oz. 15dr. troy. — Inv.
 38 4lb. 5oz. : 12s. :: 3lb. 3oz. 12dr. — 16s. aver. — Inv.
 39 8q. : 7y. :: 3q. — $18\frac{1}{3}$ — Inv.
 40 7y. : 2y. :: $18\frac{1}{4}$ — $\frac{1}{4}$ yds. nearly. — Inv.
 41 247y. : 197l. 12s :: 19 $\frac{1}{2}$ y. — 5l. 16s
 42 19 $\frac{1}{2}$ y. : 16l. 16s :: 247y. — 19l 12s — cost 185l 5s
 43 19 $\frac{1}{2}$ y. : 15l 16s :: 247y. — 197l 12 — gain 12l 7s
 44 480 $\frac{1}{4}$ cwt. : 1452l 6s :: 1cwt. — 3l 0s 5d
 45 1cwt. : 3l 5s :: 480 $\frac{1}{4}$ cwt. — 1562l 8s 9d — lost
 1422l 8s 9d
 46 100l : 5l :: 784l 10s — 39l 4s 6d
 47 5l : 100l :: 39l 4s 6d — 784l 10s
 48 12m. : 5l. :: 33m. — 13l 15s
 49 12m. : 100l. :: 9m. — 133l 6s 8 — Inv.
 50 100l. : 12m. :: 375l. — 3m. 6d. — Inv.
 51 27cwt. : 36m. :: 19cwt. — 51m. 1f. 10p. — Inv.
 52 14cwt. : 28m. :: 45 $\frac{1}{2}$ cwt. — 8m. 4f. 36p. $\frac{1}{13}$ — Inv.
 53 28m. : 14cwt. :: 8 $\frac{1}{8}$ m. — 45cwt. 1q. 22lb.
 54 96og. : 404l. :: 36g. — 15l. 3s
 55 6d. : 1l 11s 6d :: 40d. — 10l 10s — 5 $\frac{1}{2}$ d per lb
 56 49d. : 12m. :: 14d. — 42 men
 57 56lb : 2l 4s 4d :: 1lb — 9 $\frac{1}{2}$ d per lb
 58 1a : 19s 4 $\frac{1}{2}$ d :: 247 $\frac{1}{2}$ a — 139l 15s 3 $\frac{1}{2}$ d
 59 4f 7in : 3f :: 68y — 44y 1f 6in $\frac{1}{3}$
 60 1l : 7s 9d :: 740l 10s — 286l 18s 10 $\frac{1}{2}$ d
 61 1d : 19s 4d :: 365d — 352l 6s 8d — 107l 3s 4d
 62 1y : 2s 3 $\frac{1}{2}$ d :: 342y — 39l 3s 9d
 63 1280 : 7 $\frac{1}{2}$ m :: 327l — 29m 10d — Inv.

SINGLE RULE OF THREE.

- 64 14w : 84om :: 21w—560 remains and 280 turned
out. — Inv.
- 65 10ol : 5l :: 346l 15s—17l 6s 9d
- 66 6 $\frac{1}{2}$ d : 112lb :: 17 $\frac{1}{2}$ —41lb 9oz — Inv.
- 67 19 $\frac{1}{2}$ cwt : 18l 7s 6d :: 46ot—8669l 4s 7 $\frac{1}{2}$ d
- 68 16s 10d : 48y :: 3s 4d—242y 19 2n $\frac{1}{2}$ — Inv.
- 69 1l : 4s :: 24ol 16s—48l 3s 2d $\frac{2}{3}$
- 70 14y : 5l 5s :: 376 $\frac{1}{2}$ y—141l 5s 7 $\frac{1}{2}$ d
- 71 5l 5s : 14y :: 141l 5s 7 $\frac{1}{2}$ d—376 $\frac{1}{2}$ yds
- 72 376 $\frac{1}{2}$ y : 141l 5s 7 $\frac{1}{2}$ d :: 14y—5l 5s
- 73 4 $\frac{1}{2}$ y : 7y :: 36y—56yds
- 74 36oy : 105l :: 7y—2l 0s 10d
- 75 1cwt : 6l 14s :: 32cwt 3q 7lb—219l 16s 10 $\frac{1}{2}$ d
- 76 1lb : 15 $\frac{1}{2}$ d :: 32cwt 3q 7lb—237l 6s 10 $\frac{1}{2}$ d
- 77 46cwt 3q 14lb : 29l 0s 10d :: 1cwt—6l 3s 9d
- 78 1cwt : 6l 3s 9d :: 46cwt 3q 14lb—29ol 0s 9 $\frac{1}{2}$ d
257l 16s 2 $\frac{1}{2}$ d
- 79 1176g : 501l 18s :: 82g—34l 19s 10 $\frac{1}{2}$ d
g 8s 6 $\frac{1}{2}$ d
- 80 12in : 12in :: 8in—18 inches — Inv.
- 81 4m : 3l 15s :: 21m—19l 13s 9d
- 82 4m : 6d :: 6m—4 days — Inv.
- 83 3l 15s : 6d :: 9l 7s 6d—15 days
- 84 20d : 1y :: 73l 13s 4d—884y and 884 : 32=
27y 2q 2n
- 85 42in : 56lb :: 1in—168lb — Inv.
- 86 96d : 6m :: 12d—48 men — Inv.
- 87 1lb : 22d :: 3600lb—33ol and 33ol—15=315l
- 88 7cwt : 49l :: 49cwt 3q 7lb—348l 13s 9d
- 89 5ol : 2l 10s :: 375l 10s—18l 15s 6d
- 90 2l 10s : 5ol :: 18l 15s 6d—375l 10s
- 91 7f : 26y :: 21h—104 yards — Inv.
- 92 365l : 12m :: 121l 16s 8d—36 months — Inv.
- 93 4w : 3l 15s :: 52w—48l 15s
- 94 8p : 48l 15s :: 15p—91l 8s 1 $\frac{1}{2}$ d
- 95 1d : 3y :: 1ol—720oyds
- 96 1ft : 9s 4d :: 368ft—171l 14s 8d
- 97 1 $\frac{1}{2}$ m : 1h :: 11m—8h 48m
- 98 1y : 10d :: 246y—1ol 5s
- 99 2l 16s 8d : ol 5s 8d :: 1ool—1ol per cent

SINGLE RULE OF THREE.

100|1l : 13s 4d :: 1256l 10s—837l 13s 4d
 101|1256l 10s : 837l 13s 4d :: 1l—13s 4d

DOUBLE RULE OF THREE.

- 1 8d : 12h : 240m :: 24d : 16h : 960 miles
 2 46cwt : 28m : 2l 7s :: 184cwt : 84m : 28l 4s
 3 273cwt : 6l 14s : 96m :: 23cwt : 17l 16s :
 21m 3f 35p
 4 13w : 3l 4s : 24h :: 8w : 9l 16s : 45⁶/₁₃ sheep
 5 24d : 16h : 18m :: 36d : 12h : 20¹/₂ men
 6 8p : 7w : 7l 16s :: 12p : 52w : 86l 18s 3d ³/₄
 7 100l : 12m : 5l :: 347l 15s : 21m : 30l 8s 6¹/₂d
 8 126c 3q 14lb : 2l 2s 6d : 30m :: 7¹/₂c : 27l 14s 6d :
 23⁴⁷/₁₂₆ miles
 9 52w : 7l 16s : 8p :: 7w : 86l 18s 3¹/₂d : 12 persons
 10 12p : 7l 16s : 7w :: 8p : 86l 18s 3¹/₂d : 52 weeks
 11 21m : 4l 10s : 100l :: 12m : 17l 14s 5¹/₂d :
 218l 14s 0¹/₂d
 12 218l 14s : 4l 10s : 12m :: 100l : 17l 14s 5¹/₂d :
 21 months
 13 120m : 16h : 4d :: 960m : 12h : 24 days
 14 84cwt 3qr 14lb : 18l : 50m :: 26cwt : 56l 10s :
 48⁴⁷/₈₄ miles
 15 14m : 6d : 8a :: 30m : 14d : 40 acres
 16 14d : 8a : 14m :: 6d : 68a : 51 men
 17 12w : 1l 8s : 7 ox :: 4w : 19l 8s : 32¹/₃ oxen
 18 24m : 24a : 8d :: 6m : 288a : 24 days
 19 6m : 8d : 24a :: 24m : 24d : 288 acres
 20 24d : 24a : 6m :: 8d : 288a : 24 men
 21 14m : 6d : 7f : 4f : 12oy :: 49m : 21d : 4f :
 2f : 420 yards
 22 12oy : 4f : 2f : 21d : 14m :: 42oy : 7f : 4d :
 6d : 49 men
 23 4d : 16s : 3lb 4oz :: 12d : 12s : 7lb 6oz troy
 24 7y : 26l : 3l 15s :: 36y : 32l : 9l 15s 5d
 25 13w : 12l 13s : 14 ox :: 6w : 52l 13s : 27 oxen

DOUBLE RULE OF THREE.

26 14 ox : 6w : 12l 12s :: 27 ox : 13w : 52l 13s
 27 9i : 6i : 120ft :: 12i : 12i : 320 stones
 28 18i : 9i : 840ft :: 36i : 24i : 4480 stones
 29 7y : $3\frac{1}{2}$ y : 4y : 22l 1s :: 12y : $7\frac{1}{2}$ y : $3\frac{1}{2}$ y :
 75l 18s 9d
 30 28l : 21oy : 86oy :: 12oy : 4ol : 702 $\frac{2}{3}$ yds
 31 2f : 3i : 1i : 18lb :: 7f : 6i : $3\frac{1}{2}$ i : 441lbs
 32 4ol : 8p : 36w : 14l :: 6ol : 3op : 52w :
 113l 15s
 33 7y : $4\frac{1}{2}$ y : 2l 6s 6d :: 9y : 6 $\frac{1}{2}$ y : 4l 9s 8 $\frac{1}{2}$ d
 34 8d : 4oy : 4f : 2f : 7m :: 32d : 24oy : 6f : 3f :
 378 men.

PRACTICE.

1	1	6	8	3	6		5	3	6	59	5	11 $\frac{1}{2}$
	2		5	9	0			4		80	17	2 $\frac{1}{2}$
	3		4	1	9	3	6	1		1	12	10 $\frac{1}{2}$
	4		2	14	6			2		0	16	5 $\frac{1}{2}$
	5		2	0	10 $\frac{1}{2}$			3		2	9	3 $\frac{1}{2}$
	6		2	7	3		7	1		1	8	7 $\frac{1}{8}$
2	1		43	14	0			2		4	5	9 $\frac{1}{8}$
	2		29	2	8			3		7	2	11 $\frac{1}{8}$
	3		21	17	0			4		10	0	1 $\frac{1}{8}$
	4		14	11	4		8	1		12	5	3
	5		10	18	6			2		10	18	0
	6		7	5	8			3		14	6	1 $\frac{1}{2}$
2	3		1	10	8	6		4		14	19	9
			2	8	2	2		9		1	20	7
			3	12	14	10		2		21	16	3
			4	11	11	8		3		23	5	4
4	1		8	13	4 $\frac{1}{2}$			4		26	3	6
	2		20	5	10 $\frac{1}{2}$		10	1		70	4	10
	3		22	12	4 $\frac{1}{2}$			2		75	0	2 $\frac{1}{2}$
	4		24	18	10 $\frac{1}{2}$			3		62	15	9 $\frac{1}{2}$
5	1		46	14	4 $\frac{1}{2}$		5	11		1	54	13
	2		53	18	1 $\frac{1}{2}$			2		127	2	0

PRACTICE.

11	3	256	18	8	23	6	16	7	0
12	1	399	1	$10\frac{1}{2}$	7	32	14	0	0
	2	139	18	7	24	1	266	5	0
	3	175	17	$11\frac{1}{4}$	2	21	6	0	0
6	13	1	82	16	0	3	53	5	0
	14	1	69	8	0	4	15	19	6
		2	138	16	0	5	79	17	6
		3	173	10	0	6	135	15	9
		4	208	4	0	10	25	1	245
		5	277	12	0	26	1	171	10
15	1	286	0	0		2	181	6	0
	2	343	4	0		3	130	13	4
	3	514	16	0		4	173	19	0
	4	715	0	0		5	125	15	4
7	16	1	68	5	0	6	185	7	6
	17	1	156	3	0	27	1	343	15
		2	190	17	0	2	334	7	6
		3	399	1	0	3	221	17	6
		4	641	19	0	4	304	13	9
18	1	291	18	0		5	295	6	3
	2	1459	10	0	11	28	1	923	13
	3	2043	6	0	29	1	604	18	8
	4	3794	14	0		2	1304	7	9
	5	4573	2	0		3	1878	15	8
	6	5156	18	0	30	1	2525	7	6
8	19	1	75	1	6	2	1402	9	10
	20	1	134	9	3	3	2312	10	4
		2	240	14	$7\frac{1}{2}$	12	31	74	18
		3	30	17	1	32		289	19
		4	407	7	$3\frac{1}{4}$	33		43	17
21	1	149	12	6		34		2525	9
	2	166	15	$0\frac{3}{4}$		35		349	4
	3	188	0	$3\frac{3}{4}$		36		628	14
	4	35	4	$9\frac{3}{4}$		37		16	16
9	22	1	238	0	0	38		147	18
	23	1	109	0	0	39	1	80	8
		2	81	15	0	2	142	16	$1\frac{1}{8}$
		3	65	8	0	3	215	14	6
		4	54	10	0	13	40	1	8
		5	40	17	6	2	10	2	0

PRACTICE.

40	3	£.18	8	0	14	43	£. 0	17	6
41	1	52	10	0	44		6	3	9
	2	28	13	0	45		34	18	3
	3	47	11	0	46		20	3	$1\frac{1}{2}$
42	1	30	11	0	47		6	15	$8\frac{1}{2}$
	2	19	3	6	48		8	5	0
	3	22	5	3					

QUESTIONS IN PRACTICE.

1	£.24	9	$4\frac{1}{2}$	12	5	£.2734	19	$9\frac{3}{4}$
2	97	10	9	13	1	201	11	$0\frac{1}{2}$
3	345	11	$2\frac{1}{2}$	2		1108	10	$10\frac{3}{4}$
4	37	0	0	3		3183	5	$8\frac{1}{2}$
5	116	9	0	14	1	4	13	$10\frac{1}{8}$
6	493	4	0	2		15	9	10
7	1	134	8	0	3	8	0	$10\frac{1}{2}$
	2	22	8	0	4	33	10	$3\frac{1}{4}$
	3	151	4	0	15	1	4	0
	4	21	0	0	2	9	9	0
8	11	14	3	3		41	18	0
9	1	4	3	9	16	1	0	$4\frac{1}{2}$
	2	5	17	3	2	16	11	6
	3	6	8	5	3	471	10	9
10	1	10	16	0	17	1	0	8
	2	8	2	0	2		2	$1\frac{1}{2}$
	3	51	6	0	3		59	5
	4	89	2	0	18	1	4	3
	5	2413	16	0	2		2	1
11	1	1	9	4	3		1	11
	2	19	1	4	4		0	10
	3	371	1	4	5		0	16
	4	472	5	4	6		2	10
12	1	5	15	7	19	1	601	15
	2	13	0	$0\frac{1}{2}$	2		1539	14
	3	23	2	4	3		2958	6
	4	134	7	$3\frac{1}{2}$	4		49	14

QUESTIONS IN PRACTICE.

20	1	£. 906	0	$4\frac{1}{2}$
	2	5417	4	3
	3	69	16	6
	4	18	10	$1\frac{1}{2}$
21	1	0	6	8
	2	7	0	0
	3	0	17	11
	4	15	4	$0\frac{1}{4}$
	5	33	10	$9\frac{1}{4}$
22	1	1	12	$9\frac{3}{4}$
	2	2	17	9
	3	6	3	$4\frac{1}{2}$
	4	12	13	$7\frac{1}{2}$
	5	33	0	10
23	1	49	0	0

23	2	£. 67	7	6
	3	83	18	3
	4	98	0	0
	5	126	3	6
	6	158	18	$10\frac{1}{2}$
24	1	281	5	$4\frac{1}{2}$
	2	1435	7	$2\frac{1}{2}$
	3	2515	15	$10\frac{1}{2}$
	4	4042	13	$7\frac{1}{4}$
25	1	3	11	$1\frac{1}{2}$
	2	10	13	$4\frac{1}{2}$
	3	1269	11	$7\frac{1}{2}$
	4	2858	12	$4\frac{1}{2}$
	5	10362	18	3

PROMISCUOUS QUESTIONS.

1	6084	sum
	5148	difference
	2628288	product
	12	quotient
2	£. 2863	2 $1\frac{5}{8}$
3	826	5 $0\frac{3}{4}$
4	0	11 $3\frac{3}{4}$
5	1	9 $7\frac{1}{4}$
6	56	14 6
7	2	5 6
8	0	2 5
9	4	10 $6\frac{15}{17}$
10	0	12 $7\frac{1}{2}$
11	28	14 $6\frac{1}{2}$
12	572	0 0
13	7cwt. 3qr. 14lb.	
14	7s. per gallon	
	1s. 9d. per bottle	

15	137	2 $10\frac{2}{7}$	first
	68	11 $5\frac{1}{7}$	second
	34	5 $8\frac{1}{7}$	third
16	28	yards	
17	0	9 $1\frac{2}{3}$	
18	18		
19	224	$\frac{48}{83}$	
20	11	14 $4\frac{1}{2}$	
21	88	3 9	
	152	13 9	
22	0	3 $8\frac{1}{7}$	
	0	5 $3\frac{1}{7}$	
23	£. 98	0 0	
	73	10 0	
	49	0 0	
	24	10 0	
24	58	12 $10\frac{1}{4}$	
	0	0 $4\frac{1}{8}$	per lb.

PROMISCUOUS QUESTIONS.

25	£.143	3	11½	29	½ per lb.
26	109	13	4	30	4s. 7d. per yard.
27	4	6	8		£.444 7 3 the whole
28	42	2	5½	31	559 19 10½
	0	7	9½	32	10 3 2
29	49	3	5¼		

TARE AND TRETT.

1 lb.	820	14	12	12	£.615	0	0
2 cwt.	41	0	1	12	13	14	7 2½
3	10	1	24				2½d. per lb.
4	63	1	16	14	70	9	4¼
5	12	0	14	15	2	9	8
6	16	3	24	16	45	6	3
7	3	0	2 7	17	C. 23	3	14
8	26	0	1	18	£. 47	7	4½
9	13	2	0	19	168	1	10½
10	52	2	14	20	142	6	6
	£.184	3	9	21	80	13	0
11	33	19	10¼				

BARTER.

1 cwt.	7	1	14½	7	5s 3d
2	172½			8	80 gals.
3	28649½			9	11ps. & 16yds.
4	11. 13	2	B must pay	10	67 bags.
5	120yds.	at	5s 6d	11	141 18 11½ C.W. loses
6	9s 1d	10s			

LOSS

LOSS AND GAIN.

1	25 per cent.
2	12½d. per lb.
3	10d
4	24½ per cent. gain
5	15s
6	26 per cent
7	4s 11d
8	5s 0 7½ vel. 5½d
9	9s 10d
10	8s 4d

11	17l 12s
12	10½d
13	6. 4 3 4
14	3 8 8
15	17 12 0
16	5 9 6½
17	4 19 6½
18	0 15 7½
19	4 15 7½
20	0 1 2

SIMPLE INTEREST.

1	6.12 6 6
2	86 5 6
3	544 0 0
4	129 12 0
5	46 0 0
6	720 0 0
7	4½ years
8	7 years
9	5 per cent.
10	6.34 12 6½
11	46 0 0
12	7½ years
13	4½ years
14	6 148 10 0
15	111 7 0¼ 7½
16	89 10 0
17	15 12 9
18	4 5 7½
	3 4 2½
19	10 4 9½
20	400 12 4½
21	2054 1 3
	1951 7 2½
	1848 13 1½

21	6.1745 19 0½
	1643 5 0
22	1252 0 0
	1282 12 4½
	1313 5 8½
	1346 4 8
	1380 11 9
23	30 10 0
24	29 18 4½
	217 11 7½
25	2 9 4½
26	4 5 3½
27	8 10 4½
28	4 5 6 gain
29	12 6 6
30	991 18 10½
31	147 9 1½
32	69 13 9½
33	356 8 4½
34	2 10 4½
35	1 15 4½
36	1500 0 0
37	3 10 0

COMPOUND INTEREST.

1	£.277	16	7.2
2	31	14	9½
3	461	7	5½
4	550	18	4
5	240	0	0
6	146	13	3½
7	346	10	0
8	3 years		
9	5 years		
10	6½ years		
11	5 per cent.		

12	4 per cent.		
13	£.496	3	10½
14	129	5	3
15	13	18	2½ pref. loss
16	968	9	0
17	35	16	6 Com. Int.
18	462	10	6
19	24	17	6½
20	1946	0	11½
21	69	7 years	

EXCHANGE.

1	£.413	6	6
2	256	0	4½
3	474	3	0
4	939	17	1
5	981	0	0
6	969	9	4½
7	795	12	0
8	441	1	2
9	3678	15	1½
10	254	18	1
11	154	19	6½
12	7194	0	0
13	17585	7	13
14	284	18	3
15	396	12	14
16	3483	18	3
17	70	4	3
18	959	1	10½

19	£.425	11	3½
20	1728	crowns	
21	£.329	8	0
22	1224	piastres	
23	£.255	0	0
24	4055	15	4
25	63	2	6
26	1045	17	0
27	213	10	9
28	198	2	0
29	849	0	0
30	550	0	0
31	121	9	2
32	882	5	10
33	2746	883	
34	1260	235	
35	357	10	1½

SINGLE FELLOWSHIP.

1	45l. 6ol. 75l.	and 15s. per £.
2	8l. 6s. 8d. 10l. 15l.	7 72l. 108l. 125l. 150l.
3	A 27½, B 24½, C 33½	8 296l. 370l. 444l. 518l.
4	A 5 1 18, B 8 0 8, C 13 1 27, D 20 0 20	9 63l. 68l. 8s. 43l. 16s.
5	3s. 5½d.	10 133l 2 6½ 182l 12 11½
6	105l. 135l. 240l 7s 6d	11 241l 17 0½ 124l 3 3½
	210l 505l 17s 6d 750l	53l 11s 8½d

DOUBLE FELLOWSHIP.

1	A 28l 16s, B 25l 4s	6	A 25 4, B 25 12,
2	A 34l, B 33l, C 29l		C 22 10, D 30, and
3	A 32 8 B 32 8 C 43 4		1s per week
4	A 252 11 7 B 282 3 2½ C 215 5 2½	7	Owners 4230l each,
5	A 79 3 9½ B 76 2 10¼ C 91 7 5½ D 86 5 10¼		Capt. 62 16 3½, Mates
			46 1 3¼ Lieuts. 39 5 2
			Sailors 28 5 4
		8	375l each

INVOICES.

2	£. 9 7 6	3	£. 4 0 0	4	£. 7 0 0
	10 8 0		6 11 3		11 19 2
	10 6 3		10 2 6		17 1 0
	13 5 5		23 2 0		26 5 0
	40 12 3		12 15 0		41 11 10
	6 8 3		19 12 0		48 10 8
	18 4 0		24 8 0		61 16 8
	20 19 3		9 15 0		75 12 0
	14 19 0				
	0 13 3		110 5 9		289 16 4
	145 3 2				

INVOICES.

5	£. 85 8 0	8	£. 9 7 6	11	£. 13 8 3
	60 10 0		12 18 4		19 6 8
	77 12 6		15 15 6 $\frac{3}{4}$		25 12 6
	72 18 4		19 2 6		27 10 0
	94 10 0		13 5 5		30 16 0
	35 0 0		18 0 9		43 10 0
	425 18 10		27 5 5 $\frac{1}{2}$		56 5 0
			25 7 4 $\frac{1}{2}$		87 14 8
6	12 19 0		141 2 10 $\frac{3}{4}$		304 3 1
	15 18 6		3 10 10 $\frac{3}{4}$		18 4 11
	58 6 8		137 12 0		285 18 2
	88 4 0				
	12 16 8	9	6 2 4 $\frac{3}{4}$	12	26 2 8
	26 5 0		7 6 10 $\frac{1}{2}$		17 10 0
	32 4 0		10 9 7 $\frac{1}{2}$		18 18 0
	226 13 10		13 5 0		27 1 4
	5 13 4		17 11 0		31 10 9
	221 0 6		10 5 4		36 5 0
			20 16 10 $\frac{1}{2}$		45 0 0
			25 16 0 $\frac{1}{4}$		60 1 3
7	7 1 4 $\frac{1}{2}$		111 13 1 $\frac{1}{2}$		66 2 8
	11 1 3		3 12 6 $\frac{1}{2}$		80 19 9
	8 8 9		108 0 7		12 18 9
	14 4 8				21 9 4
	18 7 6	10	10 16 8		34 11 2
	17 14 8		14 3 6		39 3 0
	28 0 0		13 19 4 $\frac{1}{4}$		43 19 8
	37 12 6		14 11 8		52 10 0
	142 10 $\frac{1}{2}$ 8		24 17 3		58 2 6
	7 2 6		24 5 4		80 1 8
	135 8 2 $\frac{1}{2}$		21 17 6		106 13 4
			26 10 0		131 5 0
			33 8 3		990 5 10
			184 9 6 $\frac{1}{4}$		27 4 7
					963 1 3

A KEY TO THE INVOICES.

13	15	6	8	15	10	0	0	19	0	6	6 $\frac{1}{2}$
24	7	7 $\frac{1}{2}$		14	1	11 $\frac{1}{2}$		0	5	0 $\frac{3}{4}$	
21	5	0		18	3	0 $\frac{1}{4}$		0	3	7 $\frac{1}{2}$	
35	16	8		14	17	6 $\frac{3}{4}$		0	7	2 $\frac{1}{2}$	
36	11	0		24	14	10 $\frac{1}{2}$		0	5	11 $\frac{1}{2}$	
47	13	4		25	13	0		0	4	6 $\frac{1}{2}$	
28	9	9		31	12	11		0	7	2 $\frac{1}{4}$	
44	0	10 $\frac{1}{2}$		36	15	8		0	9	0	
77	8	0		45	19	10 $\frac{1}{4}$		0	12	1 $\frac{1}{2}$	
74	12	4		50	19	9 $\frac{1}{2}$		0	16	5 $\frac{1}{4}$	
405	11	3		37	14	8 $\frac{1}{4}$		1	4	5 $\frac{1}{2}$	
4	1	1		27	7	3 $\frac{1}{2}$		1	15	9 $\frac{1}{2}$	
				51	0	0		3	0	1 $\frac{1}{4}$	
				105	0	0					
401	10	2		504	0	7 $\frac{3}{4}$		9	18	1 $\frac{1}{2}$	
								0	15	10	
14	34	14	2					9	2	3 $\frac{1}{2}$	
53	8	9		16	255	10	5 $\frac{3}{4}$				
71	10	10		8	18	10 $\frac{1}{4}$					
56	2	0		246	11	7		20	0	2	7 $\frac{1}{4}$
87	2	4						0	2	5 $\frac{1}{4}$	
108	7	11						0	4	4 $\frac{1}{2}$	
125	2	6						0	5	5 $\frac{1}{4}$	
132	7	3		17	179	11	6	0	7	9	
142	15	4		10	15	6		0	5	8 $\frac{3}{4}$	
156	14	4 $\frac{1}{2}$						0	7	10 $\frac{1}{4}$	
133	10	9 $\frac{1}{4}$		168	16	0		0	11	3	
36	9	4 $\frac{1}{4}$						0	15	4	
73	4	9		18	9	1	11 $\frac{1}{4}$	1	0	6 $\frac{1}{2}$	
229	15	9 $\frac{3}{4}$		0	13	7 $\frac{1}{4}$		1	5	9 $\frac{1}{4}$	
1441	6	2 $\frac{1}{4}$									
				8	8	4		5	9	1	
								21	106	3	9

INVOICES

22	35 11 8	26	9 9 0	29	0 18 0
	1 16 6		16 9 3½		1 5 0 6
	34 15 2		68 5 2		01 5 15 5
			69 6 6		2 1 1 5½
23	1 2 6		191 3 0		2 7 0 9½
	4 2 9½		271 5 10½		8 7 5 6
	2 9 8½		99 15 0		12 14 2½
	7 15 7½		725 13 10		14 4 8
	3 0 11½		10 17 8½		52 12 6
	0 19 4		714 16 1½		
	4 17 6				
	7 18 8				
	1 8 8½				
	33 15 9½	27	0 4 1½	30	15 11 6
			1 0 3½		24 8 0½
			2 3 11½		23 14 5½
			3 7 0½		14 8 0½
			7 19 3½		78 2 0½
24	1 18 11½		13 1 11½		
	3 16 2		8 1 0	31	27 9 3
	3 2 6½		5 14 11½		17 18 10½
	7 11 5		18 6 10½		21 7 6
	9 16 8		13 7 5½		16 13 1½
	35 15 0				26 1 0½
	16 12 6				30 13 6½
	78 13 3½				27 12 4½
25	25 13 4½	28	33 12 11		167 15 8
	11 10 8½		89 5 6½		
	20 3 1		70 13 6½		
	37 18 9				
	13 2 6				
	1 9 1½				
	48 0 5½				
	21 7 5				
	4 0 7½				
	183 6 0				

INVOICES.

33	£. 21	8	6 $\frac{1}{4}$
	25	17	1
	21	0	10
	29	6	7 $\frac{1}{2}$
	18	16	3
	22	17	4 $\frac{1}{4}$
	23	9	0 $\frac{1}{4}$
	162	15	8 $\frac{3}{4}$

34	114	5	5 $\frac{1}{2}$
	11	8	9 $\frac{1}{4}$
	125	14	2 $\frac{1}{2}$

35	20	19	6
	24	19	1
	20	10	5
	49	2	4
	40	5	10 $\frac{1}{2}$
	245	0	0
	6	9	0 $\frac{1}{4}$
	407	6	2 $\frac{3}{4}$

36	8	6	1	3 $\frac{3}{4}$
	0	18	0	
	121	13	9	
	0	13	3 $\frac{1}{4}$	
	8	16	2 $\frac{3}{4}$	
	3	6	3	
	0	3	5 $\frac{1}{2}$	
	0	8	10 $\frac{1}{4}$	
	142	1	2	

37	£. 2	19	2 $\frac{1}{2}$
	90	13	6
	1	1	9
	51	3	9
	6	5	5
	14	11	9 $\frac{3}{4}$
	10	9	8 $\frac{1}{2}$
	1	12	1 $\frac{1}{4}$
	178	17	3 $\frac{1}{2}$

N.B. The 1, 4, 16, and 17 are by mistake put among these Questions.— They are in the former part of the Book.

1—In Barter.
2—7671 19 4
3—104 3 9 $\frac{1}{2}$
4—In Tare, Trett, &c.

5—781 $\frac{1}{2}$ gal.
6—17 r. 10qs.
7—381 2 10 $\frac{1}{4}$
21 7 6 per cwt.
8—21 7 6
9—2 16 10 $\frac{1}{2}$
1 17 11
4 6 10 $\frac{1}{2}$
0 18 11 $\frac{1}{2}$
6 12 8 $\frac{1}{2}$
10 8 6 $\frac{1}{2}$
4 14 9 $\frac{1}{2}$
15 14 4 $\frac{1}{2}$
18 0 2 $\frac{1}{4}$

10—41 0 6
11—48 $\frac{1}{2}$ cwt.
12—3821 4 3 $\frac{1}{2}$
13—501 0 0
14—51 0 0
15—9079lb.
16—In Barter.
17—In Loss and Gain.
18—891 15 6 $\frac{1}{2}$
19—7121 17 6 $\frac{1}{2}$
20—2901 15 5 $\frac{1}{2}$
21—1471 1 7 $\frac{1}{2}$ whole gn.
d. h. 57 5 11 $\frac{1}{2}$
i. o. 36 19 7 $\frac{1}{4}$
m. l. 52 16 0 $\frac{1}{4}$

VULGAR

VULGAR FRACTIONS.

Common Measure.

1	3	3	1	1
2	9	3	2	162
2	144	3	3	81
3	4	4	4	1
4	14	5	5	11
5	27	6	6	6
6	135	4	1	105

Lowest Terms.

1	2	3	3	2339
2	36	4	1	2603
2	67	5	2	51
3	428	2	3	57
4	433	5	1	1679
1	1817	3	1	2268
3	3592	5	1	52
1	112	7	1	75
2	12	7	1	27

REDUCTION OF FRACTIONS.

To a given Denominator.

1	84	3	91
2	105	4	117
	139	5	21
	186		24
			54
			112

To an Improper Fraction.

1	17	3	167
2	119	4	297
3	3786	1	16
4	84	7	21
5	74	1	94
6	89	2	9
1	3	3	1192
2	11	4	31
	4		2284
			21

REDUCTION OF FRACTIONS.

To mixt Numbers.

1	4 $\frac{1}{4}$	3	30 $\frac{7}{8}$
2	13 $\frac{2}{3}$	3	76
2	59 $\frac{9}{125}$	4	158 $\frac{122}{125}$
3	10 $\frac{14}{27}$	2	76 $\frac{186}{244}$
3	8		

Compound to Simple.

1	7 $\frac{1}{8}$	4	5 $\frac{3}{8}$
2	$\frac{1}{2}$	5	$\frac{3}{8}$
3	4 $\frac{2}{3}$		

To other Denominations.

1	40	7	147
2	76	8	123
3	1008	9	116
4	4	10	120
5	68		648
6	87		488
	13		3

Known Parts to Fractions.

1	$\frac{1}{8}$	6	$\frac{15}{16}$
2	7	7	$\frac{277}{256}$
3	13	8	$\frac{213}{128}$
4	893	9	$\frac{249}{672}$
5	219	10	$\frac{2}{13}$
	1668		$\frac{2}{13}$

To Value a Fraction.

1	17s 6d	6	37P $\frac{3}{4}$
2	17s	7	2m 2 $\frac{3}{13}$
3	5s 1 $\frac{1}{4}$ d	8	12g 16 $\frac{9}{2}$
4	1qr 24lb		5s 7 $\frac{1}{2}$ d
5	3cwt 1 23 11 $\frac{13}{128}$		259l 5s 2 $\frac{6}{7}$ d

REDUCTION OF FRACTIONS.

To a Common Denominator.

1	$\frac{40}{50}$	$\frac{45}{60}$	$\frac{48}{80}$		8	$\frac{288}{144}$	$\frac{189}{144}$	$\frac{448}{144}$
2	$\frac{3780}{4320}$	$\frac{1456}{4320}$	$\frac{2880}{4320}$	$\frac{2520}{4320}$	9	$\frac{32}{224}$	$\frac{68}{224}$	$\frac{124}{224}$
3	$\frac{3348}{8064}$	$\frac{2520}{8064}$	$\frac{7168}{8064}$	$\frac{3024}{8064}$	10	$\frac{4}{240}$	$\frac{5}{240}$	
4	$\frac{9}{10}$	$\frac{4}{10}$			11	$\frac{4070582}{5095034}$	$\frac{4030190}{5095034}$	
5	$\frac{12}{18}$	$\frac{10}{18}$	$\frac{13}{18}$			$\frac{4720463}{5095034}$	$\frac{2661606}{5095034}$	
6	$\frac{32}{24}$	$\frac{14}{24}$	$\frac{15}{24}$			$\frac{346104}{5095034}$		
7	$\frac{12}{24}$	$\frac{56}{24}$	$\frac{15}{24}$					

QUESTIONS IN REDUCTION.

1	$\frac{15}{8}$	$\frac{26}{8}$		14	218	
2	$\frac{378}{84}$			15	$\frac{648}{15}$	0
3	$\frac{60}{24}$	$\frac{15}{24}$		16	16	14 7
4	$\frac{53}{3}$			17	$\frac{7}{7680}$	
5	$\frac{10\frac{1}{2}}{2}$			18	$\frac{3}{10}$	
6	$\frac{39}{5}$			19	$\frac{159}{24}$	
7	$\frac{74}{3}$			20	$\frac{15}{120}$	$\frac{30}{120}$
8	$\frac{9}{13}$			21	$\frac{11}{960}$	$\frac{33}{960}$ $\frac{12106}{960}$ $\frac{240}{960}$
9	F. 4	17 $\frac{4}{3}$		22	$\frac{340}{27}$	8s $\frac{4}{16}$ d
10	$\frac{7}{27}$			23	$\frac{2}{12}$ qr	
11	$\frac{1\frac{1}{2}y}{2}$	$\frac{4\frac{1}{2}f}{2}$			P. 24	3 1 $\frac{11}{13}$
12	$\frac{21}{480}$	$\frac{140}{480}$			72g	38 84g
13	$\frac{325}{325}$			24	11 feet	$\frac{11}{3280}$

ADDITION OF FRACTIONS.

1	$\frac{10}{2}$	$\frac{11}{9}$		8	0	10	0
2	$\frac{23}{16}$	$\frac{19}{16}$	& $3\frac{1}{10}$	9	f. 1	$6\frac{3}{4}$	
3	$\frac{1467}{1304}$			10	$\frac{1}{6}$	6	8
4	$\frac{1\frac{1}{2}}{2}$	$\frac{2\frac{1}{2}}{2}$		11	y. 1	2	$0\frac{2}{3}$
5	$\frac{14\frac{93}{83}}{83}$	$\frac{14\frac{227}{146}}{146}$		12	g. 13	$\frac{1}{13}$	
6	$\frac{6.27}{0}$	$\frac{9\frac{2}{3}}{3}$		13	70	$\frac{13}{35}$	
7	0	1	$\frac{7}{3}$				

SUBTRACTION OF FRACTIONS.

1	$\frac{4}{8} \frac{16}{45}$	6	crwt. 1 2 19
2	$\frac{4}{9} 11 18$	7	$5\frac{1}{2}$ inches
3	$\frac{59}{173} \frac{29}{218}$	8	$2\frac{1}{2}$ yds
4	$58 10d$	9	1 18 11
5	$\text{£. } 7 17 1$	10	$\frac{5}{8}$ hdd

MULTIPLICATION OF FRACTIONS.

1	$1\frac{7}{12} \frac{1}{4} \frac{9}{18} \frac{1}{18}$	6	$258\frac{1}{2} 1$
2	$31\frac{1}{2} 120 \frac{3}{8}$	7	$3\frac{363}{117} \frac{15}{16}$
3	$\text{£. } 22 0 7 \frac{127}{3187}$	8	$\frac{108}{184}$
4	$F. 28 1\frac{1}{2}$	9	$11\frac{1}{4}d$
5	$150 10\frac{1}{2}$	10	$\text{£. } 2 1 8$

DIVISION OF FRACTIONS.

1	$1\frac{3}{18} \frac{3476}{16394}$	6	$\text{£. } 7 14 6 4\frac{1}{2}$
2	$\frac{9}{18} 36 \frac{27}{128}$	7	$49\frac{134}{880}$
3	$\frac{37}{91} 1\frac{1}{4}$	8	$\frac{5616}{91615}$
4	$F. 8 6$	9	$D. 4\frac{2}{83}$
5	$\text{£. } 2 16 8$	10	$92\frac{1}{114}$

RULE OF THREE IN FRACTIONS.

1	$lb. 5 2\frac{16}{27}$	8	$4\frac{1}{18}$ hours
2	$\text{£. } 6 16 2\frac{2}{7}$	9	1671 18 4
3	$82\frac{2}{7}$ inches	10	$38\frac{246}{1184}$
4	ol 6 10 $\frac{1}{2}$	11	$186\frac{1}{2}$
5	$28\frac{5}{12}$	12	$\text{£. } 610\frac{10}{119} - 456\frac{217}{119}$
6	$2\frac{1}{4}$ years		$366\frac{8}{119} - 305\frac{1}{119}$
7	211 13 4		$261\frac{201}{119}$

QUESTIONS.

1	$1\frac{11}{120}$	5	$\frac{107}{440}$ sum
2	$1\frac{147}{34}$		$\frac{11}{440}$ diff.
3	$1\frac{1}{9}$		$\frac{16}{440}$ product
4	$\frac{25}{48}$		$\frac{160}{147}$ quotient

QUESTIONS.

6	25	7		
7	£.22	50	0	0
8		46	13	4
		56	0	0
		37	6	8
9	3	33	33	33
10	10	399		
11	71	788		

12	3			
13	38	6		
14	407	98		
15	£.55	1	0	
16	20	13		
17	38	63	d	
18	£.187	10	0	

REDUCTION OF DECIMALS.

1	.8125
2	.02734375,
	.001472, &c.
3	.5
	.66
	.75
	.8
	.833
	.857142
	.888
	.9
4	.33
	.166
	.44
	.833
	.4166
	.444
5	.428571
	.2105263
	.05357
	.4833
6	.11
	.333
	.777
	.3636
	.162
	.08484

7	.078034
	.015625
	.0034179
	.00122073

CASE II.

1	.85
2	.5833
3	.875
4	.6875
5	.8125
6	.9375
7	.809523
8	.60625
9	.29375
10	.03125
11	.333
12	.9166
13	.8357
14	.280219
15	.0185185
16	.01388
17	.002511
18	.0111
19	.25
20	.998979
	.28125

REDUCTION OF DECIMALS.

20	0.385166	1	1 $\frac{1}{2}$ d
	.59375	3	£.0 5 8 $\frac{1}{2}$
	.740625	4	C.1 1 24 10 24
	.0497916	5	F.1 1 23
	.04166		1 1.05
	.004166	6	A.0 1 2,784
	.009375	7	G.11 1 1.2 12 3 1.2
	.0125	8	9 1 4 17 13 35.2
	.002083	9	23 3 1.679
	.028125	10	0 2 11 3.2
	.0010416	11	£.1 1 5.126
	.852083	12	0 19 11.145
		13	R. 3 9.072
		14	P.1 0 2 1.192
		15	lb.0 11 12 3.648
CASE IIId.			
1	£.0 6 6 $\frac{1}{4}$ 6		
2	3.06 pence.		

ADDITION OF DECIMALS.

1	452.29	6	£.109 12 5 $\frac{1}{2}$.16
2	198.16816	7	140.467
3	£.26 3 10.9	8	3.6 57430
4	717.00964	9	C.108 1 0.448
5	C.159 2 3.252	10	4.572034 17936

SUBTRACTION OF DECIMALS.

1	337.05	8	bbs.120 54 1 1
	3741.255	9	8.4285
2	9.625	10	£.3.28125
	190.0444	11	.388
3	100.00865	12	.7942
4	248.8488	13	£.2 3 0 $\frac{1}{4}$.45
5	270.87266	14	0 4 10.188
6	£.7 9 7 $\frac{1}{2}$	15	0 2 5
7	C.6 2 0	16	F. 8 6

MULTIPLICATION OF DECIMALS.

1	10246.6875	14	F.466 2 6
5	.0426425	15	600.084090'9
2	36348312	16	130.931306
	.015284360	17	31.9573'42
3	004262407	18	£. 1 16 4
	.0013319715		30 12 6
4	373.01	19	F. 61 10½
	509.840625	20	272 2½
5	£.129 6 5½.5	21	19.00983'8
	1 8 0½.5	22	2602.55180
6	F.34 1½	23	179.79629
7	C.110 0 18 13	24	£.214 2 2.6
8	£.0 1 10½	25	F.275 6 8
9	0 18 9	26	24.62702
10	1 8 4	27	11 16 3
11	56 7 0		11 16 3
12	6792.5		£.236 5 0
13	F. 15 5 6		

DIVISION OF DECIMALS.

1	374.65	10	1 3 9½
	218.8		0 13 7.2
2	8	11	0 19 4½
	.00133842	12	13 8½
3	£. 3 14 9¼.86		94 4 5.2
	0 19 4	12	F.35 5.29
4	F. 8 6	13	37 0
5	£. 0 2 1.2		111 0
6	0 2 6	14	£. 5 0 0
7	4 8 0		60 0 0
8	109 18 7.2		0 5 0
	366 8 8		1200 0 0
	159 5 3½	15	0 0 2½.2
	15 12 11.3		0 0 3¼.798
9	106 2 6		2 3 1.24
	53 1 3	16	10000 +
	26 10 7½		10000000
	13 15 1.66	17	£.0 0 0.12396
10	2 9 2½		

RULE OF THREE IN DECIMALS.

1	£. 20	12	9	9	M. 243	.479167
2	lb. 7	.29	166	10	£. 64	1 1.375
3	9.04	166		11	296	9 2.4
4	£. 3	2	11½	12	15	15 10½
5	M. 45	.9842		13	4.38	2 13.2
6	lb. 8	.55		14	M. 77	.7 nearly
7	£. 23	18	9.3	15	£. 7	2 8½
8	0	0	10.8			

PROMISCUOUS QUESTIONS.

1	.125	10	8.85714 feet
2	.25	11	£. 0 9 2½
3	26.1305	12	99.94
4	2.9385	13	5s. per £. 25 per cent.
5	16.63+		£. 10 3 9
6	.75		13 12 6
7	£. 10 15 6½		15 14 0
8	.416 & 240 hours	14	0 7 2½ per yd.
9		15	68—£. 0 13 7.2

DUODECIMALS.

1	F. 235	10	6	7	F. 65	8	4	2	8
2	411	1	10	6	8	5	7	0	4
3	388	8	0		9	1883	5	7	6
4	182	4	10		10	8	5	6	3
5	730	1	3	2	11	14	8	11	6
6	249	6	1	1					10

SIMPLE INTEREST.

1	£. 13	14	9	5	£. 5	13	8
2	103	19	0	6	247	91	0
3	108	0	3½	7	348	101	0
4	161	2	8	8	77	10	0

SIMPLE INTEREST.

4	£.724	14	1½	4	68.35
5	235	5	0	1	5 per cent.
3	1	1 year		2	5
2	6.			3	4½
3	8½				

QUESTIONS IN SIMPLE INTEREST.

1	£.592	2	0.8	10	£. 2 16 0
2	.057	18	6½	11	0 15 0
3	7.2 years			12	28 years
4	5 per cent.			13	3½ per cent.
5	£.6232	13	4	14	20 years
6	2725	14	1½	15	4½ per cent.
7	4	18 per cent.		16	£. 2 8 2.16
8	126 days			17	202 6 0.48
9	2 years				

COMMISSION, &c.

1	£. 7 16 2.	8	£. 5 12 6½
2	18 13 0.06	9	224 17 6.45
3	3 3 0	10	47 17 9.3
4	228 11 5	11	584 2 6½
5	8.12 5½		6.108 months
6	701 19 4.36	12	13 months
7	181 3 0	13	£.414

COMPOUND INTEREST.

1	1	£.206	16	10½	3	17 years
2	29	8	11		2	7½
3	446	12	9		3	34
4	123	7	9½		4	14.206
5	9	16	0		4	15 per cent.
2	1	147	0 0		2	4½
2	65	0 0			3	4½
3	100	0 0				

ANNUITIES.

1	1	£. 162 16 9½	3	3	£. 29 12 0
	2	1117 6 4½		4	19 14 1
	3	1201 12 6		5	22 14 0
2	1	88 12 10½	4	1	2.971 7 years
	2	269 8 6		2	7
	3	1402 2 5½		3	9
3	1	20 9 9¼		4	18.8
	2	49 2 6			

QUESTIONS IN ANNUITIES.

1	1	£. 950 0 0	5	1	£. 47 10 0
	2	386 14 10.8		6	7 years
	3	274 17 0		7	7
	4	47 10 0			

QUESTIONS IN COMPOUND INTEREST.

1	1	£. 57 13 9½	10	1	£. 55 11 11½
	2	59 17 7½		11	78 14 2 lols
	3	216 8 6½		12	The Interest exceeds
	4	7½ years			the Rent by 12l. per
	5	£. 76 15 9.48			Annum, which in 21
	6	9½ years			Years will amount to
	7	£. 116 1 0			406l.
	8	5 per cent.		13	£. 833 17 2½
	9	8 2 0.96 at 5 p cent.			

ARITHMETICAL PROGRESSION.

1	1	£. 78 0 0	4	5 miles 1300 yds
	2	3 years		5 3s. diff. 201l. 10s.
	3	18l.—88l.		

GEOMETRICAL PROGRESSION.

1	32	7	6, 2 5 6 $\frac{1}{4}$
2	16	8	128
3	6.4890590 18 7 $\frac{3}{4}$	9	380 $\frac{1}{2}$
4	531441	10	16777216
5	9984	11	1860040
6	6. 2 3 8		

ALIGATION.

1	1	6. 0 4 9 $\frac{9}{11}$	3	2	46 52 $\frac{1}{2}$ 26 $\frac{3}{4}$ 52 $\frac{1}{2}$
	2	0 0 10 $\frac{9}{10}$		3	13 2 $\frac{1}{14}$ 2 $\frac{1}{14}$ 2 $\frac{1}{14}$
	3	0 0 9 $\frac{4}{11}$	4	1	22 $\frac{2}{3}$ 11 $\frac{1}{3}$ 11 $\frac{1}{3}$ 33 $\frac{1}{3}$ 33 $\frac{1}{3}$
2	1	14lb. 11lb. & 11lb.		2	89 $\frac{5}{11}$ 36 $\frac{3}{11}$
	2	4 4 & 8		3	6.8 5.6 5.6 28
	3	1 & 2		4	20 $\frac{2}{3}$ 31 $\frac{7}{13}$ 15 $\frac{1}{13}$ 15 $\frac{1}{13}$
	4	6 6 3 6 & 25			36 $\frac{1}{13}$
3	1	1 2 2 10 12			

PROMISCUOUS QUESTIONS.

1	8 gallons	3	6.5 0 3 $\frac{3}{4}$
2	9 $\frac{9}{13}$	4	8 $\frac{5}{12}$

SQUARE ROOT.

1	12	6	.756855
2	24, 72, 144		.18644
3	432, 864		.26898
4	154.46		.048725
	52.4689	7	.07596
	6.1237		.0264575
	891.609		.019234
5	196.1537		44.213
	1.8635		14.142
	2.64574	8	4.472, 1.4142, .4472
	1.414213		.1414, .0447, .01414
	.85689	9	4, 2 $\frac{2}{3}$, 3, .866, .9353
			8, 1 $\frac{6}{17}$, .932, .48707

CUBE ROOT. TABLE.

1	4096	6	14.4258
2	24	6	.69432
3	48, 96, 8.9118	3	.08518
4	38.4	1	.44258
	767.943		.6694
	3308.969		.3085
5	1126.08	7	.14425, .06694, $\frac{1}{4}$,
	43.0231		.848, .9564, .6147
	14.8349		

ROOT OF THE FOURTH POWER.

1	65536	4	91.852, 389.706
2	12	5	16.1099, 29.2586
3	47.9773, 95.9274	6	16.1099, 4.66525

ROOT OF THE FIFTH POWER.

1—1048576. 2—12, 24. 3—48, 96.

ROOT OF THE SIXTH POWER.

1—16777216. 2—12. 3—24, 48, 96.

ROOT OF THE SEVENTH POWER.

1—268435456. 2—12. 3—24, 48, 96. 4—192.

SOME USES OF THE SQUARE ROOT.

1	32	8	152.671
2	21	9	22.6
3	39.555, 24.446	10	196
4	79.111, 48.892	11	33.9411
5	10.056, 6.494	12	36
6	100.287726	15	21.023
7	100.290695	16	15

SOME USES OF THE SQUARE ROOT.

17	20	20	2.433
18	32.73	21	22.05
19	994 f. 8½ i.	22	29.4

SOME USES OF THE CUBE ROOT.

23	220.89375	26	45.248
24	14.884	27	540 tons
25	2.667		

QUESTIONS IN THE USES OF THE SQUARE AND CUBE ROOTS.

1	36 feet	9	29.66
2	88	10	52
3	196	11	F. 197 0½
4	35	12	1.731
5	20.64 nearly	13	31.666
6	11.765 lbs.	14	2.776
7	22.6	15	26.1627
8	34.597		23.2 & 10.07

LOGARITHMS.

1	3.4320067	6	9.4320870
2	1.4320067	7	8.4313638
3	2.4320067	8	7.4313638
4	1.4321031	9	6.4313638
5	0.4320067	10	1.8660805

MULTIPLICATION BY LOGARITHMS.

1	8892	5	3312
2	430.5	6	021584
3	9.052	7	001533
4	40796		

DIVISION BY LOGARITHMS.

1 | 19 2 | 3.493 3 | .2091

RULE OF THREE BY LOGARITHMS.

1 | 69 2 | 17.3

INVOLUTION BY LOGARITHMS.

1 729.75076	2 4.1889568
2 4096, 34.34328125	3 5.0027809
3 6561, 65.0538	4 6.00000000000030818

EVOLUTION BY LOGARITHMS.

1 | 24, 7.605 2 | 24 3 | 9.26357

DUPLICATE PROPORTION.

1 || 88.2 2 | 100.287 3 | 9.826

MULTIPLICATION BY THE SLIDING RULE.

1 | 222. 2 | 128. 3 | 28

DIVISION BY THE SLIDING RULE.

1 | 47.33 2 | 8 3 | 87.78 4 | .6048

RULE OF THREE BY THE SLIDING RULE.

1 72	5 168.661, 1681 13s 4d
2 18.76	6 27.348g.
3 18.24	7 12.375
4 24 men	

SQUARE ROOT BY THE SLIDING RULE.

1 16	2 56169
256	264
56.25	4096
2.2879	421.875

SQUARE AND CUBE ROOT.

1 | 4, 16, 7.5, 1.5128, 237 2 | 4, 7.5

DUPLICATE PROPORTION BY THE SLIDING RULE.

1 14.899	2 18.9927
216.007	2100.287
358 nearly	388.2
435.45 nearly	44.909

MISCELLANEOUS QUESTIONS.

- 1 $48 \times 17 \div 34 = 24$
- 2 $\frac{1}{2} \times \frac{3}{4} \times \frac{2}{3} = \frac{1}{2} \times \frac{3}{2} = \frac{3}{2}$
- 3 $56 \times 13\frac{1}{2} = 756$
- 4 $3 : 1\frac{1}{2} :: 21 : 10\frac{1}{2}y$
- 5 $\angle.1 \ 17 \ 9 \times 46\frac{1}{2} = \angle.88 \ 4 \ 9\frac{1}{2}$
- 6 $8 : 240 :: 46 : 1380$
- 7 $8 : 6 :: 3 : 16$
- 8 $20\frac{1}{2} : 72 :: 15 : 98\frac{1}{2} \text{ inches}$
- 9 $88 : 112 :: 96 : 122\frac{1}{2} \therefore 22.18 \text{ gain per cent.}$
- 10 $12 : 1 :: 8 : \frac{8}{12} \text{ \& } 1 - \frac{8}{12} = \frac{4}{3} \text{ \& } \frac{4}{3} : 8 :: 1 : 24d$
- 11 $13s. \ 4d. \times \frac{1}{4} \times \frac{1}{2} = 9s. \ 4d.$
- 12 $16f. \times \frac{1}{4} = f.8 \ 3\frac{1}{2}$
- 13 $\frac{1}{2} : \frac{5}{8} :: \frac{631}{1416} E = \frac{14172}{3768} = 59E. \frac{33}{118}$
- 14 $1 \text{ oz.} : 5s. \ 11d. :: 125 \ 17 \ 23 : \angle.37 \ 4 \ 1\frac{1}{2} \ 3d$
- 15 $80 : 92 :: 38 : \angle.43.7, \frac{1337}{1000} = 6\frac{1}{2}d. \frac{1}{16}$
- 16 $1 - \frac{2}{3} = \frac{1}{3}, \text{ and } \frac{1}{3} \text{ of } \frac{1}{3} = \frac{1}{9}, 32 \times \frac{1}{9} = 192g.$

MISCELLANEOUS QUESTIONS.

$$17 \ 80 : 100 :: 20 : 25 \quad 25 + 20 = 45 \text{ per cent.}$$

$$18 \ 8 : 6 :: 20 : 15, 5 : 7 :: 20 : 28, 63 : 160 :: 20 : 28$$

$$20 : £.50 \ 15 : 10 \frac{2}{3} :: 15 : £.38 \ 1 \ 10 \frac{4}{5} :: 28$$

$$£.71 \ 2 \ 2 \frac{2}{3}$$

$$19 \ 11 \times 2 - 2 = 20, \frac{20}{2} = 10, 5 \times 5 = 25, 200 + 25 = 225, \sqrt{225}$$

$$= 15 = 10 \text{ years}$$

$$20 \text{ Square root } 4 \times 4 + 6 \times 6 + 9 \times 9 = 11.522 \text{ yards}$$

$$21 \ 2 : 30 :: 20 : 300, 300 - 40 \div 7 \frac{1}{2} = 34 \frac{1}{2} \text{ galls.}$$

$$22 \ 17 : £.3 :: 4768y. : £.1430 \ 8, 1430 \ 8 - 1192 =$$

$$£.238 \ 8, \text{ or } 20 \text{ per cent. gain}$$

$$23 \text{ Amount of } £.400 \text{ in } 10 \text{ years is } £.651 \ 558, \text{ of } 50 \text{ per}$$

$$\text{annum } £.628 \ 89.$$

$$\text{Difference is } 22.668 \text{ or } £.22 \ 13 \ 4 \frac{1}{2} \text{ gain}$$

$$24 \ 300 \div 2 + 300 \div 3 = 250d. \text{ cost, } 600 \times 2 \div 5 = 240d,$$

$$250 - 240 = 10d. \text{ loss}$$

$$25 \ 1000 \div 5 = 200d, 500 \div 4 + 500 \div 6 = 233 \frac{1}{3}, 233 \frac{1}{3} -$$

$$200 = 33 \frac{1}{3}d. \text{ gain}$$

$$26 \ 6.75 : 120 : 7.25 : 128 \frac{5}{8}, 128 \frac{5}{8} - 100 = 28 \frac{5}{8} \text{ p. cent.}$$

$$27 \ 1200 \div 5 + 1200 \div 6 = 440y. 440 \times 55. 6 = £.122 \text{ and}$$

$$£.2 \text{ gain}$$

$$28 \ \frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16} \text{ and double the first, viz. } 2 \times \frac{1}{2} = 1 \text{ the sum}$$

$$29 \ \frac{2}{3}, \frac{2}{9}, \frac{2}{27}, \text{ the ratio } 3 \text{ and the first } \frac{2}{3} \times 3 \div 2 = 1 \text{ the sum}$$

$$30 \ \frac{1}{2}, \frac{3}{8}, \frac{3}{16}, \text{ the ratio } 4, \text{ and the first } \frac{1}{2} \times 4 \div 3 = 1 \text{ the sum}$$

$$31 \ \frac{1}{3}, \frac{1}{5}, \frac{1}{15}, \text{ the ratio } 5, \text{ and the first } \frac{1}{3} \times 5 \div 4 = 1 \text{ the sum}$$

$$32 \ £.50 = 1 \frac{1}{4} \text{ of the cost : } 50 \div 1 \frac{1}{4} = £.40 \text{ the cost}$$

$$33 \ 120 : 100 :: 20 : £.16 \ 13 \ 4 \text{ cost}$$

$$34 \ 4 \times 4 \times 9 \div 2 \div 3 \times 7 \div 2 = 84 \text{ the number}$$

$$35 \ \sqrt{49 \div 3} = 4.04157 \text{ yards}$$

$$36 \ 1 \times 2 \times 2 \times 2 \times 2 \times 2 \times 32 \times 1024 \times 1048576 =$$

$$1099511627776 \text{ half of which is } 549755813888,$$

$$\text{the value of the last, \&c.}$$

$$37 \ \sqrt{18.5 \times 18.5 \times 2} = 26.1629, \text{ or } 18.5 \times \sqrt{2} = 26.1629$$

$$38 \ 300 : 40 \times 40 \times 40 :: 800 : 4266.66, \sqrt[3]{4266.66} =$$

$$16.215$$

$$39 \ 6 \times 6 + 12 \times 12 \div 12 = 15 \text{ the length of ladder, or, \&c.}$$

$$40 \text{ as } 6 \times 2 : 12 - 6 :: 12 + 6 : 15 \text{ the height of the wall}$$

MISCELLANEOUS QUESTIONS.

$$41 \quad 11 \times 1 : 16 \frac{1}{4} :: 3.5 \times 3.5 : 197 \frac{1}{4} \text{ feet}$$

$$41 \quad 1142 \times 7 = 7994 \text{ feet}$$

$$43 \quad 1142 \times 9.75 = 11134.5 \text{ feet} = 3711 \frac{1}{2} \text{ yards}$$

$$44 \quad .7854 : 1 :: 4840 : 6035.4133, \sqrt{6035.413} = 77.687 \text{ y.}$$

$$45 \quad 30 - \sqrt{30 \times 30 - 9 \times 9} = 1.382 \text{ feet}$$

$$46 \quad 9 : 5 \times 5 \times 5 :: 28 : 875. \text{ the cube root of which is } 9.5646 \text{ lbs.}$$

$$47 \quad \frac{2}{3} \times \frac{7}{7} : 4 :: \frac{1}{8} \times \frac{1}{1} : \frac{1}{7} = 2 \frac{2}{7}$$

$$48 \quad 7777$$

$$49 \quad \text{A's and B's, B's and C's, A and C} = 2 \text{ A's} + 2 \text{ B's} + 2 \text{ C's, therefore } 60 + 84 + 72 \div 2 = 108 = \text{A's} + \text{B's} + \text{C's}$$

$$108 - 84 = 24 = \text{A's, } 108 - 72 = 36 = \text{B's, and } 108 - 60 = 48 = \text{C's.}$$

$$50 \quad 25 \text{ l. } 10 \text{ s.} - 12 \text{ l. } 10 \text{ s.} = 13 \text{ l. which is the interest of } 260 \text{ l. at the given rate, and } 260 \text{ l. will gain } 250, \text{ or amount to } 510 \text{ l. in } 13.8 \text{ years, per compound interest; wherefore an annuity of } 13 \text{ l. per annum will amount to } 250 \text{ l. in } 13.8 \text{ years.}$$

FINIS.



